



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/731,231	12/09/2003	Jiebo Luo	87009SLP	4909
70523	7590	12/31/2007		
Carestream Health Inc, 150 Verona Street Rochester, NY 14608			EXAMINER TABATABAI, ABOLFAZL	
			ART UNIT 2624	PAPER NUMBER
			MAIL DATE 12/31/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/731,231	Applicant(s) LUO ET AL.	
	Examiner Abolfazl Tabatabai	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. Claims 1, 10-13 and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lehmann (U.S. 6, 132, 210) in view of Kopelman et al (U. S. 2003/0143509 A1).

Regarding claim 1, Lehmann discloses a method for locating a dental target within a digital dental image, said method comprising the steps of:

segmenting a window in said dental image (please note, to column 13, lines 12-16) ;

defining the size and location of said window relative to said segmented reference prior to said segmenting of said window (please note, to column 6, lines 41-44 and column 8, lines 54-57).

However, Lehmann is silent about the specific details regarding the step of:

segmenting a reference object within a digital dental image to provide a segmented reference, said reference object having a predetermined size dimension. In the same field of endeavor (medical imaging), however, Kopelman discloses method and system for assisting in applying an orthodontic treatment comprising the step of:

segmenting a reference object within a digital dental image to provide a segmented reference, said reference object having a predetermined size dimension [please note, to page 1, paragraph (0006) and page 4, paragraph (0039)].

It would have been obvious to a person of ordinary skill in the art at the time to use segmenting a reference object within a digital dental image to provide a segmented reference, said reference object having a predetermined size dimension as taught by Kopelman in the system of Lehmann because Kopelman provides Lehmann an improved system for assisting an orthodontist in applying orthodontic treatment.

Regarding claim 10, Lehmann discloses the method of claim 1 wherein said segmenting of said window further comprises presenting a plurality of different predetermined active shape models and accepting user input selecting one said active shape models as a selected model, and applying said selected model to said dental

image (please note, to column 2, lines 8-12 and 43-63).

Regarding claim 11, Lehmann discloses the method of claim 10, wherein said user input is a tooth designation (please note, to column 10, lines 29-31).

Regarding claim 12, Lehmann discloses the method of claim 1 further comprising: displaying said dental image and said window following said segmenting of said window (please note, to column 6, lines 36-40); and accepting user adjustment of said window (please note, to column 13, lines 62-65).

Regarding claim 13, Lehmann discloses the method of claim 1 wherein said segmenting is automatic (please note, to column 8, lines 19-23).

Regarding claim 16, Lehmann discloses the method of claim 1 further comprising:

placing said reference object in a patient's mouth, wherein said reference object defines said start location on said dental target (please note, to column 6, lines 41-44); and capturing an image of said reference object and said dental target (please note, to column 6, lines 26-33); and digitizing said image to provide said dental image (please note, to abstract).

Claims 17 and 18 are similarly analyzed as claim 1 above.

3. Claims 2-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lehmann (U.S. 6, 132, 210) and Kopelman et al (U. S. 2003/0143509 A1) as applied to claim 1 above and further in view of Sachdeva et al (U.S. 7, 234, 937 B2).

Regarding claim 2, Lehmann and Kopelman are silent about the specific details regarding the method of claim 1 further comprising searching within said dental image

from said reference object along a predetermined initializing vector to a start location, said window being inclusive of said start location.

In the same field of endeavor (medical imaging), however, Sachdeva discloses unified workstation for virtual craniofacial diagnosis, treatment planning and therapeutics comprises reference object along a predetermined initializing vector to a start location, said window being inclusive of said start location (please note, to column 12, lines 62-67).

Regarding claim 3, Lehmann and Kopelman are silent about the specific details regarding the method of claim 1 wherein said segmenting of said window further comprises applying a predetermined active shape model to said dental image. In the same field of endeavor (medical imaging), however, Sachdeva discloses unified workstation for virtual craniofacial diagnosis, treatment planning and therapeutics comprises segmenting of said window further comprises applying a predetermined active shape model to said dental image (please note, to column 12, lines 62-67).

Regarding claim 4, Lehmann and Kopelman are silent about the specific details regarding the method of claim 3 wherein said active shape model includes one or more shape parameters.

In the same field of endeavor (medical imaging), however, Sachdeva discloses unified workstation for virtual craniofacial diagnosis, treatment planning and therapeutics comprises shape model includes one or more shape parameters (please note, to column 4, lines 15-23 and column 20, lines 41-54).

Regarding claim 5, Lehmann and Kopelman are silent about the specific details

regarding the method of claim 4 wherein said active shape model includes one or more texture parameters.

In the same field of endeavor (medical imaging), however, Sachdeva discloses unified workstation for virtual craniofacial diagnosis, treatment planning and therapeutics comprises active shape model includes one or more texture parameters please note, to column 4, lines 15-23 and column 20, lines 41-54).

It would have been obvious to a person of ordinary skill in the art at the time to use shape mode, shape parameters and texture parameters as taught by Sachdeva in the system of Lehmann because Sachdeva provides Lehmann a powerful tool to the dentist or orthodontist for diagnosis and treatment planning system.

Claim 6 is similarly analyzed as claim 5 above.

Regarding claim 7, Lehmann discloses the method of claim 3 wherein said active shape model is inclusive of said reference object (please note, to column 12, lines 13-49).

Claim 8, is similarly analyzed as claim 7 above.

Claim 9, is similarly analyzed as claim 3 above.

Allowable Subject Matter

4. Claims 14, 15, 19 and 20 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the claim and any intervening claims.

Other Prior Art

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Molteni et al (U. S. 5,083,920) disclose phantom for dental panoramic x-ray apparatus.

Morris et al (U. S. 6,190,170 B1) disclose automated tooth shade analysis and matching system.

Contact Information

6. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to ABOLFAZL TABATABAI whose telephone number is (571) 272-7458.

The Examiner can normally be reached on Monday through Friday from 9:30 a.m. to 7:30 p.m. If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Bhavesh Mehta, can be reached at (571) 272-7453. The fax phone number for organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published Applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

Application/Control Number:
10/731,231
Art Unit: 2624

Page 8

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Abolfazl Tabatabai

Patent Examiner

Technology Division 2624

December 19, 2007

A-Tabatabai